

The Health Effects of Economic Insecurity

ABSTRACT

Background. Interest in the health and behavioral effects of economic insecurity appears to vary with the performance of the economy. The current recession in the United States and Western Europe and growing unemployment in Eastern Europe make it timely to analytically review the recent research concerned with the health effects of economic contraction.

Methods. The research concerned with the health and behavioral effects of economic insecurity is organized by dependent variable and method. Rules for determining which effects are supported by strong and which by weak evidence are developed and applied to the literature.

Results. Evidence for effects on symptoms of psychological distress, seeking help for psychological distress, and nonspecific physiological illness is strong. Evidence for effects on suicide, child abuse, adverse birth outcomes, and heart disease is characterized as weak or sufficiently controversial to warrant skepticism.

Conclusions. The health effects of economic security are undoubtedly mediated by economic policies. Estimating the effect of policy alternatives on the incidence of various outcomes is, however, very difficult given the current state of the research. The effect of rising unemployment on health in Eastern Europe cannot, moreover, be estimated from existing research. Effects estimated from Western economies probably do not generalize to situations in which the meaning of economic insecurity is conditioned by profound social and political reforms. (*Am J Public Health.* 1991;81:1148-1152)

Ralph Catalano, PhD

Introduction

The deepening recession in the United States and the transition to more marketlike economies in the USSR, Eastern Europe, and elsewhere make it timely to review the research concerned with the health effects of economic insecurity. The following review of the literature characterizes as strong or weak the empirical evidence for several hypothesized effects. The characterization is derived by organizing the referenced literature as shown in Table 1.

The columns of Table 1 are defined by the dependent variables studied in the research. The rows are defined by how the independent variable is measured. Economic insecurity has been measured with community-level indicators such as the unemployment rate. Research that uses these indicators is "ecological" in that it also uses prevalence or incidence of disorder in the same community as a dependent variable.

Economic insecurity has also been measured as the undesirable job or financial experiences of individuals. Losing a job or income, or being unable to pay one's bills are examples of individual experiences that are assumed to be "driven" by the economy and to be risk factors for disorder.

The number of studies listed in any cell in Table 1 is limited to five. Cells with fewer than five entries include all studies that meet minimum standards of internal and external validity. Row one includes only time-series analyses because temporal ordering of presumed causes and effects is difficult to establish in cross-sectional designs. Row two includes only those studies that argue plausibly against selection or the possibility that a biological or psychological predisposition to illness

caused both the dependent phenomenon (e.g., psychological depression) and the economic experience presumed to be independent (e.g., job loss).

In order to designate evidence as strong, there must be at least two supporting studies in each of the two cells of a column. The reader can relax the rule or make it more stringent and still use Figure 1 to characterize the evidence. Controversy, of course, remains even in cases in which evidence is strong. Instances in which the level of controversy warrants special attention are noted in the text.

The justification for the rule is that findings in either cell of a column can, even if replicated by other studies in that cell, be explained in ways that do not require economic insecurity to affect health. Any finding using individual-level data, for example, can be attributed to selection because randomized true experiments testing the effect of economic insecurity are impossible. Studies based only on aggregate data, on the other hand, are frequently criticized because they risk the "ecological fallacy" or the inferential error of assuming that the individuals in the community who, for example, lost a job, were also those who became ill. Two findings in each cell of a column, however, are difficult to attribute to any cause other than an effect of the economy because reverse causation and the ecological fallacy cannot survive both types of tests. An ef-

Ralph Catalano is with the School of Public Health of the University of California, Berkeley.

Requests for reprints should be sent to Ralph Catalano, PhD, SAHS, Warren Hall, University of California, Berkeley, Berkeley, CA 94720.

This paper was submitted to the journal August 3, 1990, and accepted with revisions February 19, 1991.

TABLE 1—Referenced Research on Economic Contraction and Health

| | Symptoms Of Psychiatric Disorder | Seeking Help for Psychological Disorder | Suicide | Child Abuse | Nonspecific Physiologic Illness | Heart Disease | Adverse Birth Outcomes |
|------------------------------|--|---|-----------|-------------|---------------------------------------|---------------|---------------------------|
| Community-Level Indicator | 49–52 | 53–57 | 58–62 | 24 | 29 | 29, 35, 36 | 46 |
| Individual Experiences | 2, 6, 7, 11, 63 | 5, 14, 17, 64 | 17, 65–67 | 19–23 | 25–28, 68 | 17, 32–34 | 38, 39 |

fect at the individual level is difficult to attribute to selection if it is also found at the aggregate level because change in the prevalence of depression, for example, is unlikely to have caused an earlier drop in macroeconomic indicators. The ecological fallacy is, moreover, less a threat when an association discovered in aggregate data has also been found in individuals.

Another reason to include ecological analyses is the “net effects” problem that arises from attempts to generalize individual-level findings to communities.¹ An individual-level association between job loss and depression, for example, intuitively implies that the latter will rise in a community experiencing an increase in unemployment. It is possible, however, that some persons in the community are depressed by the phenomena that cause firms to stop hiring and lay off workers. Such phenomena include loss of price competitiveness, inflation, reduced value of investments, and imminent bankruptcy. Indeed, political institutions allow unemployment because a meaningful fraction of the population believes it is less harmful than the alternative. Those who believe they have been spared the alternative are less likely to be depressed. The net effect of unemployment on depression in the community may, therefore, be less than the individual-level research implies.

Applying the Decision Rules

Symptoms of Psychological Disorder

The least controversial of the reported effects is that job loss (not necessarily the inability to find a first job or unsuccessful return to the labor market after a voluntary withdrawal) is a significant risk factor for reporting symptoms of psychological disorder. This effect has been found and replicated in both cells of column one. The work at the individual level has been large and convergent. Re-employment, moreover, has been re-

ported to restore lower levels of symptoms in individuals.² The adverse psychological effect of job loss has also been reported to extend to the spouse of the job loser.³

There are at least three caveats regarding this work that should be heeded. One is that the seriousness of the disorder measured by self-reported symptoms is not clear. While survey methods have been devised to measure disorder, they are not universally accepted as sufficiently developed to allow diagnosis. The most conservative inference is that losing a job is a significant risk factor for subclinical distress. This distress may, however, move people to behaviors that are epidemiologically significant, such as alcohol abuse.⁴

The second caveat concerns the strength of the effect of losing a job on psychological well-being. Individual-level research in the field suggests that experiencing an undesirable job event doubles the odds of reporting symptoms of disorder.^{5,6} While this is an important effect, it must be put into perspective. Smoking, for example, increases the odds of lung cancer 20 to 30 times.

The third caveat concerns the population to which these findings can be generalized. Workers can be separated into several groups defined by the perceived security and desirability of their jobs. Most of the research has been concerned with the short-term effect of job loss on individuals who had secure jobs in historically stable industries. These jobs were often protected by unions and conferred good benefit packages. Research in this population is divergent on whether the effects of job loss are consistent across demographic or socioeconomic subgroups. Job loss among autoworkers, for example, appears to have had its most pathogenic effect on less-educated minorities.⁷ Research based on representative population samples, however, suggests that the effects of undesirable job or financial events

are as pathogenic for middle- and upper-income persons as for those with lower incomes.⁸

No published research focuses on the psychological effect of economic insecurity on laborers who move in and out of marginal jobs that offer no security or benefits. One study suggests that those who have lost secure, desirable jobs often become “skidders” or move into the secondary labor market of less secure and desirable jobs.⁹ This “skidding” appears to have adverse psychological effects beyond those of losing the original job in the primary labor market.

There is no published research concerned with the effects of economic insecurity on the psychological status of the chronically mentally ill. Research described in the next section does, however, suggest that persons with a history of mental health problems are less tolerated during times of economic contraction than at other times.

The long-term effects of unemployment have also been little studied. An exception to this is the work studying the effects of the Great Depression of the 1930s on cohorts that have been followed for a half century.¹⁰ That work has focused more on measures of psychosocial functioning (e.g., parent-child relationships) than on the incidence of disorder. These phenomena may, however, be risk factors for disorder and probably deserve more attention than the field now gives.

Another effect is that the inability to find work for the first time or after a voluntary withdrawal from the labor force increases symptoms of psychological disorder. This effect has been reported at the individual level in well-designed studies.¹¹ The issues of seriousness and strength of effect, described under the probable effect of job loss on symptoms, applies to this literature as well.

Researchers have hypothesized that the psychological effect of being unemployed may be conditioned by the unemployment rate of the community. One hy-

pothesis is that the effect will be reduced in communities with high unemployment because misfortune will be attributed to the environment rather than to personal shortcomings.¹² Another hypothesis is that the effect will be amplified by the realization that there is little chance for relief.¹³ The best empirical test to date finds no support for either hypothesis.⁵

Seeking Help for Psychological Disorder

A second finding for which there is strong evidence is that economic insecurity increases the incidence of seeking help for psychological disorder. In other words, the number of persons in a community who seek mental health services will increase when the economy of the community contracts. This appears to be true because there are newly symptomatic persons and because others whose symptom levels do not change also seek help when they experience undesirable job and financial events.^{5,14}

The fact that use of mental health services increases with economic insecurity even when symptoms are controlled suggests a phenomenon that has been little studied but is of potentially great importance in societies with socialized health care. These findings imply that tolerance for behavioral and physical deviance may be reduced by economic insecurity.¹⁴ Firms apparently lay off workers whose productivity is lessened by chronic behavioral or physical problems when the cost of finding and compensating more productive workers is reduced by an oversupply of labor. Those with chronic problems may sense this increased vulnerability and use services to reduce their disorder. The tendency to use services for this purpose is probably greatest where the cost of health services is borne by someone other than the employer and the employee. This is true because worker's use of such services is less likely to be discouraged by a firm that bears no cost for failed treatment but gains a more productive worker from successful treatment.

Suicide

The effect of economic insecurity that has historically received the most attention is suicide. Aggregate time-series research has frequently reported an association between economic insecurity and the incidence of suicide.¹⁵ There have, however, been exceptions to this finding.¹⁶ The individual-level findings, moreover, have been weak, in that nearly all

are retrospective and cannot control for selection. The one exception has not been replicated.¹⁷

Research has also been conducted on the effects of economic insecurity on parasuicide (i.e., apparent attempts to commit suicide that are intentionally or unintentionally unsuccessful) and suicidal ideation (i.e., thoughts of taking one's own life). The former analysis was based on aggregate time series and reported the intuitive inverse relationship between economic indicators and parasuicide.¹⁸ The latter was based on individual-level data and reported a weak association between undesirable job or financial experiences and suicidal ideation.¹⁶

Evidence supporting the effect of economic insecurity on suicide is characterized as strong by the decision rules used here, but there is sufficient controversy to warrant skepticism, particularly in cases of cross-cultural generalization.

Child Abuse

There is a suggested effect of economic insecurity on child abuse, but the evidence is weak. Research at the individual level consistently finds that job loss and inability to find work are more common among known abusers than what would be expected by chance.¹⁹⁻²³ One aggregate time-series analysis also reports that job loss (not unemployment) is associated with child abuse.²⁴

Evidence for an effect of economic insecurity on child abuse could, by the decision rules applied here, move to the strong category with additional aggregate time-series research. It should be noted, however, that the existing individual-level research is not as rigorous as most of the studies in row two in Figure 1. Perhaps because studies of low-frequency criminal behaviors are difficult to conduct, there is no research that attempts to control for selection through a prospective design.

Nonspecific Physiological Illness

It is widely believed that psychological distress is associated with physiological disease. A reasonable hypothesis would thus be that economic insecurity may affect physical health through psychogenic processes. Research at the individual level has reported a connection between undesirable job and financial events and episodes of illness controlling for age, sex, socioeconomic status, and other stressors.²⁵⁻²⁸ The research is, however, based on surveys or small samples, making it difficult to identify which diseases were more common than expected among

those experiencing economic adversity. The implications of unemployment for the incidence of specific diseases are, therefore, difficult to infer from the individual-level research.

There is no aggregate research dealing with nonspecific physical illness except that of Brenner²⁹ who has reported relationships between economic insecurity and general mortality. Independent attempts to replicate Brenner's findings regarding general mortality have, however, not been successful.^{30,31}

Heart Disease

Heart disease is an exception to the observation that the individual-level work concerned with physiological outcomes is nonspecific. Individual-level research reports an association between stressors, including the loss of jobs or income, and myocardial infarction.^{17,32-34} Brenner^{29,35} and Bunn³⁶ have reported ecological time-series associations between economic insecurity and mortality by heart disease. The fact that attempts to replicate the Brenner and Bunn findings have not been successful³⁷ suggests that the evidence for this association, while strong by the rules applied here, should be used with caution.

Adverse Birth Outcomes

The individual-level research concerned with economic insecurity and adverse birth outcomes is conflicting. At least two studies report that stressful life events, including income loss, in a family are a risk factor for low birthweight.^{38,39} These findings are consistent with related work concerned with the effect of job loss on the physiology of women.⁴⁰⁻⁴³ Two other studies, however, report no association between unemployment and birthweight.^{44,45} One explanation of this divergence might be that the latter studies were conducted in countries (i.e., Australia and England) in which prenatal care is widely available and not dependent on employment. Indeed the subjects for the studies were drawn from women in prenatal care before and after job loss.

Brenner reports that infant mortality is associated at the aggregate level with economic insecurity.⁴⁶ This finding, however, is not consistent with a more rigorous analysis of data from New York City that reported no association of employment rates with the incidence of low birthweight.⁴⁷ The evidence is therefore weak for an effect of economic insecurity on the incidence of adverse birth outcomes.

Warnings Regarding Policy Inferences

The above review implies that non-specific physical and psychological disorders as well as use of mental health services will probably increase with the recession in the United States and other industrialized democracies. These disorders are potentially as important politically as clinically because they could motivate people to demand societal control of the stressor.⁴⁸ It would, however, be wise to resist the temptation to use the existing research to forecast the number of cases of a particular outcome that would occur if the unemployment rate increased by a given percentage. The unemployment rate is a composite measure of many different kinds of individual experiences (e.g., job or income loss, inability to find first job, inability to find work after voluntary withdrawal from the labor market) that probably have very different "risk effects." We cannot use risk ratios based on specific individual experiences to derive an overall effect for the unemployment rate because such ratios are not available and, if they were, we would not know the relative incidence of the experiences among the unemployed. We do not know, moreover, if rising unemployment will be accompanied by other phenomena that may reduce or amplify its virulence. The effects of unemployment in Eastern Europe, for example, will likely be mediated by simultaneous and profound political change. It could be argued that the effects will be amplified because the population and its institutions have not had to cope with unemployment in more than four decades. It could also be argued that the human effects will be mitigated by the belief that mass disemployment is a phase of a process that will end a long period of relative deprivation and political repression. □

Acknowledgments

This article is based on a paper presented to the World Bank conference on employment and social dimensions of economic adjustments, Washington, DC, February 1990.

References

- Catalano R, Serxner S. Time series designs of potential interest to epidemiologists. *Am J Epidemiol*. 1987;126:724-731.
- Kessler R, Turner J, House J. Effects of unemployment on health in a community survey: main, modifying, and mediating effects. *J Soc Issues*. 1988;44:69-86.
- Penkower L, Bromet E, Dew M. Husband's layoff and wives' mental health: a prospective analysis. *Arch Gen Psychiatry*. 1988;45:994-1000.
- Forcier M. Unemployment and alcohol abuse: a review. *J Occup Med*. 1988;30:246-251.
- Dooley D, Catalano R. Why the economy predicts help seeking: a test of competing explanations. *J Health Soc Behav*. 1984;25:160-175.
- Dooley D, Catalano R, Rook K. Personal and aggregate unemployment and psychological symptoms. *J Soc Issues*. 1988;44:107-124.
- Hamilton V, Broman C, Hoffman W, Renner D. Hard times and vulnerable people: initial effects of plant closing on autoworkers' mental health. *J Health Soc Behav*. 1990;31:123-140.
- Dooley D, Catalano R. The epidemiology of economic stress. *Am J Community Psychol*. 1984;12:387-409.
- Ferman L, Gardner J. Economic deprivation, social mobility, and mental health. In: Ferman L, Gordus J, eds. *Mental Health and the Economy*. Kalamazoo, Mich: WE Upjohn Institute for Employment Research; 1979:193-224.
- Elder G, Capri A. Economic stress in lives: developmental perspectives. *J Soc Issues*. 1988;44:25-46.
- Warr P, Jackson P, Banks M. Unemployment and mental health: some British studies. *J Soc Issues*. 1988;44:47-68.
- Cohn R. The effect of employment status on self attitudes. *Soc Psychol*. 1978;41:81-93.
- Brown R. *Mental Health and the Economy: A Dissaggregated Analysis*. Ann Arbor, Mich: University of Michigan; 1982. Doctoral Dissertation (Sociology).
- Catalano R, Rook K, Dooley D. Labor markets and help-seeking: a test of the employment security hypothesis. *J Health Soc Behav*. 1986;27:277-287.
- Platt S. Unemployment and suicidal behaviour: a review of the literature. *Soc Sci Med*. 1984;19:93-115.
- Dooley D, Catalano R, Rook K, Serxner S. Economic stress and suicide: multilevel analyses, parts 1 and 2. *Suicide Life Threat Behav*. 1989;19:336-351.
- Theorell T, Lind E, Floderus B. The relationship of disturbing life changes and emotions to the early development of myocardial infarctions and other serious illness. *Int J Epidemiol*. 1975;4:281-293.
- Platt S. Parasuicide and unemployment. *Br J Psychiatry*. 1986;149:401-405.
- Garbarino J, Crouter A. Defining the community contact for parent-child relations: the correlates of child maltreatment. *Child Dev*. 1978;49:604-616.
- Rosenthal J. Patterns of reported child abuse and neglect. *Child Abuse Negl*. 1988;12:263-271.
- Krugman R, Lenherr M, Betz L, Fryer G. The relationship between unemployment and physical abuse of children. *Child Abuse Negl*. 1986;10:415-418.
- Taitz L, King J, Nicholson J, Kessel M. Unemployment and child abuse. *Br Med J Clin Res*. 1987;294:1074-1076.
- Gil D. Violence against children. *J Marriage Family*. 1971;33:637-657.
- Steinberg L, Catalano R, Dooley D. Economic antecedents of child abuse and neglect. *Child Dev*. 1981;52:260-267.
- Kessler R, House J, Turner J. Unemployment and health in a community sample. *J Health Soc Behav*. 1987;28:51-59.
- Catalano R, Dooley D. The health effects of economic stability: a test of the economic stress hypothesis. *J Health Soc Behav*. 1983;22:46-60.
- Westin S, Norum D, Schlesselman J. Medical consequences of a factory closure: illness and disability in a four-year follow-up study. *Int J Epidemiol*. 1988;17:153-161.
- Beale N, Nethercott S. The nature of unemployment morbidity. *J R Coll Gen Practitioners*. 1988;310:197-202.
- Brenner M. *Estimating the Social Costs of Economic Policy: Implications For Mental and Physical Health, and Criminal Aggression*. Report to the Congressional Research Service of the Library of Congress and Joint Economic Committee of Congress. Washington, DC: US Government Printing Office, 1976.
- Cohen L, Felson M. On estimating the social costs of national economic policy: a critical examination of the Brenner study. *Social Indicators Research*. 1979;6:251-259.
- Gravelle H, Hutchinson G, Stern J. Mortality and unemployment: a critique of Brenner's time-series analysis. *Lancet*. 1981;ii:675-679, September.
- Theorell T. Life events before and after the onset of premature myocardial infarction. In: Dohrenwend B, Dohrenwend BP, eds. *Stressful Life Events: Their Nature and Effect*. New York: Wiley; 1974:101-117.
- Chang N, Kawai S, Okada R. Autopsy statistics on the relative frequency of acute myocardial infarction in the Japanese metal workers and the unemployed during the two oil-crisis periods. *Sangyo Ika Daigaku Zasshi* 1989;11(suppl):106-119.
- Moser K, Fox A, Goldblatt P, Jones D. Stress and heart disease: evidence of associations between unemployment and heart disease from the OPCS longitudinal study. *Postgrad Med J*. 1986;62:797-799.
- Brenner M. Economic change, alcohol consumption and heart disease mortality in nine industrialized countries. *Soc Sci Med*. 1987;25:119-132.
- Bunn A. Ischaemic heart disease mortality and the business cycle in Australia. *Am J Public Health*. 1979;69:772-781.
- Forbes J, McGregor A. Male unemployment and cause-specific mortality in post-war Scotland. *Int J Health Serv*. 1987;17:233-240.
- Norbeck J, Tilden V. Life stress, social support, and emotional disequilibrium in complications of pregnancy: a prospective, multivariate study. *J Health Soc Behav*. 1983;24:30-46.
- Nuckolls K, Cassel J, Kaplan B. Psychological assets, life crisis, and the prognosis of pregnancy. *Am J Epidemiol*. 1972;95:431-441.
- Arnetz B, Wasserman S, Petrini B, et al. Immune function in unemployed women. *Psychosom Med*. 1987;49:3-11.
- Brenner S, Levi L. Long-term unemployment among women in Sweden. *Soc Sci Med*. 1987;25:153-161.
- Baum A, Fleming R, Reddy D. Unemployment

- ment stress: loss of control reactance and learned helplessness. *Soc Sci Med.* 1986;22:509-516.
43. Fleming R, Baum A, Reddy D, Gatchel R. Behavioral and biochemical effects of job loss and unemployment stress. *J of Hum Stress.* 1984;10:12-17.
 44. Najman J, Morrison J, Williams G, Keeping J, Andersen M. Unemployment and reproductive outcome: an Australian study. *Br J Obstet Gynaecol.* 1989;96:308-313.
 45. Stein A, Campbell E, Day A, McPherson K, Cooper P. Social adversity, low birth weight, and preterm delivery. *Br Med J Clin Res.* 1987;295:291-293.
 46. Brenner M. Fetal, infant and maternal mortality during periods of economic stress. *Int J Health Serv.* 1973;3:145-159.
 47. Joyce T. A time-series analysis of unemployment and health—the case of birth outcomes in New York City. *J Health Econ.* 1990;44:419-436.
 48. Keiselbach T, Svensson P. Health and social policy responses to unemployment in Europe. *J Soc Issues.* 1988;44:173-192.
 49. Catalano R, Dooley D. Economic predictors of depressed mood and stressful life events in a metropolitan community. *J Health Soc Behav.* 1977;18:292-307.
 50. Catalano R, Dooley D. Does economic change provoke or uncover behavior disorder: a preliminary test. In: Ferman L, Gordus J, eds. *Mental Health and the Economy.* Kalamazoo, Mich: Upjohn Foundation for Employment Research; 1979:321-346.
 51. Dooley D, Catalano R. Economic, life, and disorder changes: time-series analyses. *Am J Community Psychol.* 1979;7:381-396.
 52. Dooley D, Catalano R, Brownell A. Economic, life and symptom changes in a non-metropolitan community. *J Health Soc Behav.* 1981;22:144-154.
 53. Brenner M. *Mental Illness and the Economy.* Cambridge, Mass: Harvard University Press; 1973.
 54. Kiernan M, Toro P, Rappaport J, Seidman E. Economic predictors of mental health service utilization: a time-series analysis. *Am J Community Psychol.* 1989;17:801-820.
 55. Catalano R, Dooley D, Jackson R. Economic predictors of admissions to mental health facilities in a nonmetropolitan community. *J Health Soc Behav.* 1981;22:284-297.
 56. Marshall J, Funch D. Mental illness and the economy: a critique and partial replication. *J Health Soc Behav.* 1979;20:282-289.
 57. Catalano R, Dooley D, Jackson R. Economic antecedents of help seeking: a reformulation of time-series tests. *J Health Soc Behav.* 1985;20:141-152.
 58. Cook T, Dintzer L, Mark M. The causal analysis of concomitant time series. *Appl Soc Psychol Annu.* 1980;1:93-135.
 59. Hammermesh A, Soss N. An economic theory of suicide. *J Polit Econ.* 1974;82:83-98.
 60. Marshall J. Changes in aged white male suicide: 1948-1972. *J Gerontol.* 1978;33:763-768.
 61. Stack S, Haas A. The effect of unemployment duration on national suicide rates: a time-series analysis, 1948-1982. *Sociol Forces* 1984;17:702-704.
 62. Vigderhous G, Fishman G. The impact of unemployment and social integration on changing suicide rates in the USA, 1920-1969. *Soc Psychiatry.* 1978;13:239-248.
 63. Dew M, Bromet E, Schulberg H. A comparative analysis of two community stressors' long term mental effects. *Am J Community Psychol.* 1987;15:167-184.
 64. Banziger G, Foos D. The relationship of personal finance status to the utilization of community mental health centers in rural Appalachia. *Am J Community Psychol.* 1983;11:543-552.
 65. Olsen J, Lejer M. Violent death and unemployment in two trade unions in Denmark. *Soc Psychiatry.* 1979;14:139-145.
 66. Fox A, Goldblatt P. *Longitudinal study: sociodemography and mortality differentials, 1971-1975.* London: Her Majesty's Stationery Office; 1982.
 67. Fruensgaard K, Benjaminsen S, Joensen S, Helstrup K. Psychosocial characteristics of a group of unemployed patients consecutively admitted to a psychiatric emergency department. *Soc Psychiatry.* 1983;18:137-144.
 68. Iversen I, Sabroe S, Damsgaard M. Hospital admissions before and after a shipyard closure. *Br Med J.* 1989;299:1073-1076.

Study on the Link between Diet and Breast Cancer to Be Conducted at UCLA

The Nathan Pritikin Research Foundation funded a comprehensive study on the link between diet and breast cancer to be conducted at UCLA Medical School. The study will evaluate the effects of a high-carbohydrate, low-fat diet (10% of calories from fat) on the levels of estradiol, a potent estrogen, in women. Estradiol, which has been shown to promote breast cancer in laboratory studies, is considered an important factor in the development of breast cancer in women.

A preliminary study funded by the foundation has shown that a low-fat diet reduced estradiol levels by 48%. Epidemiological studies also indicate the benefit of a low-fat diet on breast cancer. Several other studies are using drugs to alter estradiol mechanisms, but the foundation's studies represent an exciting dietary approach to reducing the risk of breast cancer.

The UCLA breast cancer study continues the foundation's tradition of leadership in preventing and controlling lifestyle-related diseases.

To discuss the breast cancer study, as well as other aspects of the link between diet, exercise and health, please call Jennifer H. Cline at 312/988-2320.